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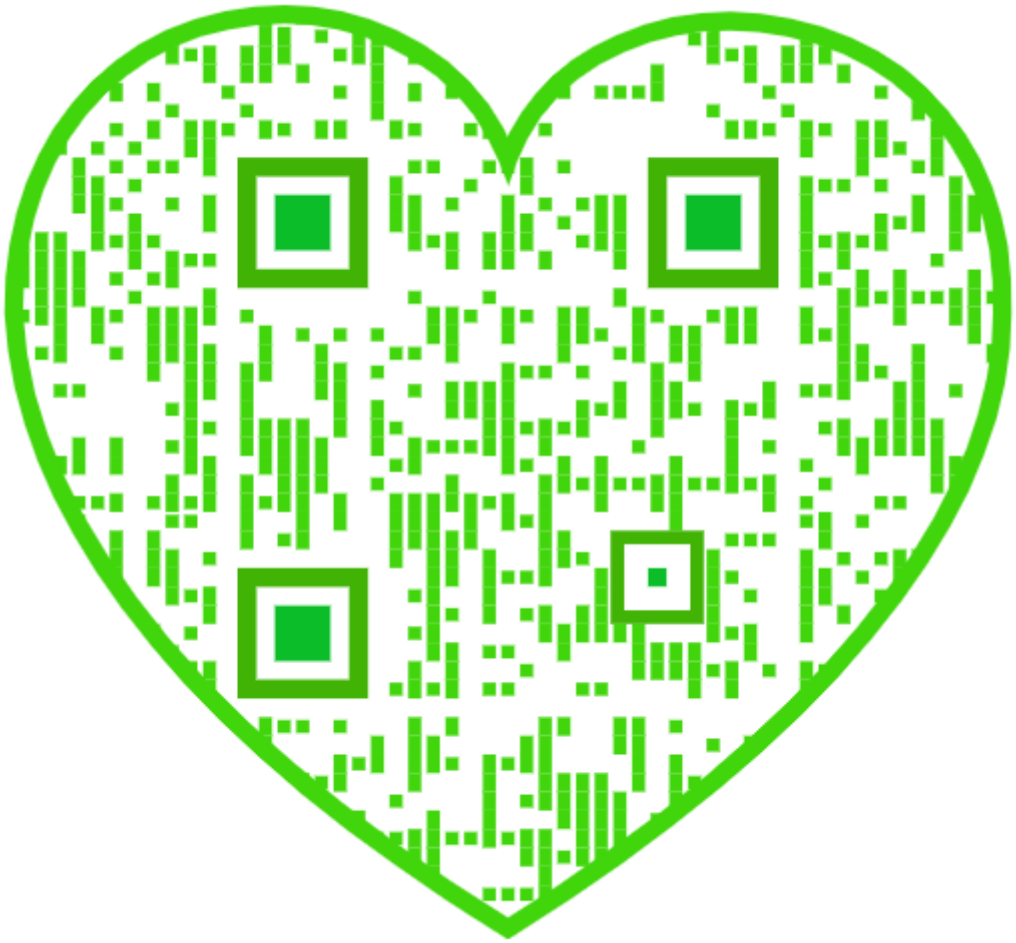

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ROUSSEAU'S

House and Decorative Painter,

BEING A FULL AND PLAIN TREATISE ON THE THEORY AND PRACTICE OF

PLAIN AND DECORATIVE

HOUSE PAINTING,

STAINING, GRAINING,

PAPER-HANGING, SIGN-WRITING, &c.

BY P. J. ROUSSEAU.

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PREFACE.

In presenting this little work to the public, the writer has aimed to embrace in as limited a space as possible, only such instruction as would most benefit and interest the learner; at the same time avoiding all unnecessary technical terms that would tend to confuse and lead him into vague uncertainties. The rules to be found in the following pages, both theoretical and practical, are delineated in a clear, concise and comprehensive manner, together with a synopsis of the various rules and methods for the manipulation of colors, &c., pertaining to the painter's art.

ROUSSEAU'S
HOUSE AND DECORATIVE PAINTER.

The important matter of taste in exterior house painting, is one which, until recently, has received but little attention in this country. It was for many years the accepted rule, that all exteriors should have one unvarying coating of white; and that all appendages, as blinds and shutters, should exhibit the greenest green which art was capable of producing. No one was bold enough to innovate this almost universal bad custom, and white in its dazzling freshness and purity stared at us from every quarter. There was no escape but to close our blinking eyes and so, find momentary relief from the painful discord of this inharmonious combination. Previous to the white and green eruption which broke out almost simultaneously in all parts of the older and long settled States, there prevailed a custom in New England, particularly in Massachusetts, of painting exteriors with a soft yellowish cream-color, or yellowish pea-green. These colors, which accord

with green, were pleasant to look upon; and the eye was wont to linger lovingly on those old, rectangular, cube-shaped board and shingle domiciles, which did much abound in the old Bay State. Afterward, in obedience to the behests of fashion, these colors were replaced by the prevailing white, and the eye no longer sought them as things of beauty in the landscape, but turned away as from whited sepulchures. White, in large masses, is out of place in the general landscape, *because*, it cannot be made to blend with the general harmony. It is harsh, discordant and obtrusive. It may, however, be exhibited in small proportions; as, on the window-sashes, surrounded by a dark frame, with good effect. Indeed, there is nothing which, for this purpose, can take its place. In this connection it tends to light up, and brighten what might without it, seem too sombre and dull. White harmonizes with all the primary colors and most of the secondary and tertiary and broken colors. It is good with red and yellow, but feeble with the latter color and with blue, if the white be in excess; and with brown; and not bad with the drabs and stone-colors; but with all these the white must prevail. The unpleasant effect of white in large masses on exterior house-work, is much relieved when contrasted with brown trimmings and window blinds; but a brown house

would not be improved by painting the trimmings with white. It seems unaccountable that the only color, in the whole range of colors, which discords with white, should have been the one chosen to associate it with for the painting of exteriors; and stranger still is it, that so many people will, to this day, exhibit these in combination; the white in large masses, the green in contrast, but in lesser proportions. The convenience of white paint—the fact of its requiring no mixing or manipulation—has, no doubt, been a reason for its so general use. The putting together of colors, with white as a base, for producing the broken or accidental colors, is now to most persons a mystery which they deem themselves helpless to solve. *Many painters,* even, have not mastered this branch of their trade, and are quite at a loss to know what colors to order, for producing, with white, any desired tint or tone or shade. For the information of those who lack this knowledge, we give in this connection the only rules which can be of real service, and these will prove useless to the blind or the color-blind. Black and White are called extreme colors, and when mixed together in whatever proportion, make pure gray, of deeper or lighter tone. The addition of red makes a red gray; and more red produces brown. Blue, added to white and black and red, gives a blue gray, if in proper propor-

tion; and, if in larger quantity, brown. *White*, with black and red and yellow, gives any tone of drab,—warm or cold,—stone-color, clay-color, fawn, and almost any known or unknown neutral tint. White with yellow, gives straw-color, lemon-color, buff, &c., and with red, corn-color, orange-color, etc. Yellow and red, make all the deeper and lighter tones of scarlet; as the red or yellow predominates. *Blue* and red give crimson and purple; as the red or blue is in excess. Red with *White*, produces pink, peach and carnation colors. Blue and yellow produce green; and with red, olive green or olive brown. Purple and orange make russet; green and orange, citrine; green and purple make olive. The rules themselves are arbitrary, but the proportions of the different colors in any mixture is wholly a matter of choice or taste. The art of combining colors—beyond a few simple rules like those above—cannot be taught by book. Practice alone will perfect one in the art, and practice and example will render the best eye for color more discerning and will improve the discriminating powers of those who are partially color-blind; but, as the display of colors has the sole object to please the eye, the eye alone must be counseled as to what is good.

Every practical painter will appreciate at a glance the truth of the following remarks as to the properties which a pigment must possess, to

render it, under all circumstances, a desirable paint. It is not of the slightest consequence by what name it may be designated, or what chemists and professors may say of its component or constituent parts, or its property of resisting the action of certain gases, or its wonderful and never-before-heard-of "chemical affinities." All such talk is mere bosh; and is altogether impertinent to the question. A good paint *must* possess:

First. The property of *opacity;* that is, it must *cover* well.

Second. It must work—that is spread—easily, smoothly and evenly under the paint brush.

Third. It must retain its color when exposed to sun-light, and not darken or discolor when *not* exposed to the light; and lastly, it must be as durable under exposure to sun and storms, as it is possible for a paint to be in the nature of the mixture.

Whatever paint possesses these properties in the highest degree, is best—whether it is called lead, or zinc, or ochre, or whitewash, or buttermilk; and the writer contends, that the least educated journeyman house-painter in the United States, who has served an apprenticeship to the trade, is better qualified to judge of the value of the materials which he uses, in respect to good qualities enumerated above, than the most

skillful chemist or learned professor. As a rule, all this professor-talk and certification is a trap to catch the unwary, and to help to foist upon the market some substance which will not stand upon its own merits.

The pigments first in importance to the painter are White Lead and Zinc. It is not the intention of the writer herein to discuss the comparative values of these indispensable materials. To do so is simply to stir up long seated prejudices and deeply rooted antipathies. Both paints have their respective superior qualities; and the object should be to ascertain when and where to use them to the best advantage. In proof of the assertion that most of the antipathy existing against zinc as a paint, is *only* prejudice, may be adduced the fact that hundreds of thousands of tons of Zinc have been used under the name of Lead, which would not have found sale or consumption under its own proper name.

To remedy the difficulty in, and meet the objections to the employment of colors for exterior house-painting, Mr. Masury, of New York, now the successor to the business of the long established and well known house of Masury & Whiton, carried out largely the idea of furnishing *ready-made* colors, which should only require to be thinned with oil, to render them fit for use. These colors are shown on a sample card, to the number

of forty, and the list includes nearly all the tints and shades suitable for painting outside work. The undertaking was one of no little magnitude, and involved a large outlay of time and money. The result has, however, proved the existence in the community of a want of such paints. These goods have been in the market for several years—long enough to test their efficiency—and hundreds of people in various sections of the country have borne willing testimony to their durability, economy, and convenience. Success in any undertaking begets imitation, and a host of imitators have sprung up to flood the market with worthless colors, expecting to find sale for the same because of the reputation gained and established by the above-mentioned firm. To protect consumers from the imposition of these worthless paints—which will be attempted under all sorts of specious pleas and pretences such as "equally good colors to last," &c., and the thousand "ways that are dark and tricks that are vain," which sellers know how to avail themselves of to deceive the unwary—the manufacturers of the well-tried colors known as "Railroad Colors," have adopted the plan of putting upon every package, not only the name under which the goods are sold and known, but also the full name of the firm, *i. e.* "Masury & Whiton, New York." The boldest imitator will hardly dare to counterfeit the name of the firm,

and this, in a measure, affords protection to the buyer. Remember that *only* these colors have stood the test of time and the wear and stress of the weather influences. These paints are as well suited for inside as for outside work, and the sample card spoken of presents such a variety that the most fastidious may be suited in selecting from it.

Referring again to the matter of taste in house-painting, we quote from a work recently published on that subject. The writer says, speaking of the free use of white: "It is a kind of puritanism "in painting which has no warrant in nature, "which in such matters should be our guide and "instructor. If we go to her humbly, as little "children, for instruction, she will point us to the "vaulted arch above, frescoed by day with a "thousand shapes and hues of lovliness and "beauty, and by night with myriads of stars; to "the cool, gray tints of the morning twilight, "and the gorgeous blazoning of the summer sun-"set. She will show us a landscape, whereon, "with lavish hand, she has painted forms of "beauty of every color and hue, and tint, and "shade, aud penciled with exquisite touches the "tiniest leaf."

It must not, however, be supposed that in seeking instruction from nature, we are to copy the natural disposition of colors in the decoration of

our houses, either in kind or proportion. *Because*, nature in the vernal season spreads a carpet of living green beneath our feet, and at all times a canopy of azure above us, is not of itself good reason why the base of a house should be painted green, and the roof sky-blue. Both these colors should have little or no place in the external ornamentation of a building, *for the reason*—if for no other—*that nature exhibits them in abundance*, and of a purity that art cannot hope to rival. It should be remembered that a building is not in any sense a natural object, but with its formal lines and severe angles, is artificial to the last degree; and must, under all circumstances, be treated as such; and any attempt to make it appear a natural object, by painting it with such colors as nature most largely displays, is ridiculous. The true theory in painting a country house is to render the building conspicuous, but not obtrusive,—to enhance its good features, if it have any, and diminish or hide its defects,—to bring it into harmony with its surroundings, and with the general landscape.

The use of the primary colors, red, blue and yellow, and the extreme colors, black and white, excepting the latter in small quantity, is not admissible in exterior house painting. The advocate of white will ask exultingly, what looks better in a country landscape than a white house

peeping out from a mass of green foliage? which means simply, what looks better than a white house when it is covered or hidden from view? For present purposes, the question of "how not to paint," may be considered as settled, and it becomes important to ask, "how shall we paint," and what colors are fitted and suitable for exterior house painting? The economical view of the case will remain in abeyance, as appearances only are now important. The tints or tone of color, called *neutral* and semi-neutral, as drabs, fawn, stone-colors, grays, buffs, cream, and clay-colors, are most suitable for exterior painting, as also olive drabs and greenish browns. Two or three tones of color which harmonize, either by contrast or analogy, may be exhibited in juxtaposition, with good effect; and this style of painting is happily now the fashion, the custom of coloring exteriors with one uniform, unvarying tint, being among the by-gones. The art of combining colors with each other, and with black and white to produce the various hues, tones, shades, and broken colors, so simple to an adept, is among the mysteries to the uninitiated, and impossible with many, from the fact that not a small proportion of mankind are possessed of perceptive faculties which are not sensitive to color impressions; *i. e.* they are color-blind. The perception of color is a natural gift, and the eye alone must be consult-

ed as to what is good; but as much depends upon circumstances and conditions, as bodily and mental sanity, its judgment is by no means infallible, as "all looks yellow to the jaundiced eye," and under the most favorable circumstances the delicate organism of the eye becomes tired when exercised by certain color impressions. Referring to those colors wherein the yellow ray is predominant, the writer would impress most strongly the fact that of all the colors except white, yellow is, from its strong reflective power, the least diminished by distance, and the most difficult to neutralize. There will always be more of it than the sample would lead one to expect. It never comes short of its promise, and becomes obtrusive as it is exhibited in large masses. Caution must, therefore, be used in the selection of the yellowish colors, for, unless a decidedly yellow tone is wanted, the result is apt to disappoint. It is, however, less obtrusive than white, and always in better harmony with the landscape, either in the vernal or winter season. A yellow house, with green blinds, is perfectly harmonious in itself and with its surroundings; yellow being almost the only color which harmonizes perfectly with all the shades of green and all the shades of brown.

There are, in all communities, timid persons, who cannot bear criticism; who, in matters of

taste, have no well-grounded opinions, but are controlled entirely by the decided expressions of their stronger minded neighbors. To such, the writer would recommend, in house painting, the use of colors which are so entirely neutral as to disarm criticism. Variety is, however, most desirable, and no two houses in a village should be painted alike; supposing all to be painted well. Exterior house painting affords a good opportunity for the expression of individuality, and every man should, in some particular, express himself differently from his neighbors.

Fortunately, the alphabet of color is inexhaustible, so there exists no necessity for uniformity. The custom which has heretofore much prevailed, namely, of painting groups of buildings belonging to one homestead, of uniform color, is not a custom to be honored. Every member of a group of structures should have its individual color, as it has its own form and size. One general tone should pervade the whole, but each should have its distinctive color, except where it may be desirable to hide or diminish some of the lesser buildings. That will best be accomplished by painting such of the same color as the main or principal building. As a rule, the principal building should present the lightest shade.

The harmonics of color, when placed together

in contrast, are as follows: Red harmonizes with blue, and white, and yellow, and black, and brown, and gold.

Blue, harmonizes with black, and white, and red, and yellow, and crimson, and scarlet and purple.

Yellow, harmonizes with blue, and black, and red, and green, and scarlet, and crimson, and purple.

White, harmonizes with all the primary and secondary colors except green.

Black, harmonizes with all the primary and secondary colors, except green. When placed in contrast with that color, a line of white or yellow should separate them; otherwise both lose by the connection.

Gold, harmonizes with every color, especially with green, and purple, and scarlet, and crimson, and brown, and black.

The discords in colors are as follows:

Yellow and pink; green and purple-red; olive and red; slate and green; russet and green; blue-green and lilac; scarlet and olive-green; crimson and green; crimson and olive; mulberry and green; claret and green; lilac and green; red-brown and green; purple and citrine; blue-purple and green; and the worst of all discords is purple and green.

PRACTICAL TASTE.

The practice of painting blinds, doors, caps, sills, sash, cornice, stoop, &c., of several colors, is objectionable to persons of refined taste, as it breaks up the mass of general unity of effect, tending to belittle the structure. One color of various shades, on nearly all parts of the house produces a more impressive appearance. By a little further consideration of the subject, we will find there is something practical to be learned by its study in relation to interiors. The color of almost any object is of importance; especially is it so in its association with other objects and surroundings in our homes, where so large a part of our hours are spent, and our dearest interests centre, instead of adopting plans and styles as it were by accident, as is often the case; thought should be given to the tastes of those who are to occupy the house as well as to the fitness of plans to the purposes intended. The various workmen who make and finish our homes ought certainly to understand their respective avocations thoroughly; but, unfortunately, many do not, consequently owners naturally looking to tradesmen for guid-

ance in their lines of business, are misled into blunders which are not discovered until too late to remedy, unless by doing the work all over again, which most persons are not willing to undergo. We frequently see colors allowed, not at all in keeping with the purposes of the room, because, perhaps the painter, decorator or furniture dealer has a "run" on a certain style or wishes to dispose of material "on hand," or some one else of "fashionable inclination" has patronized it, and so, whether suitable or not, it is adopted. If a room is so situated as to admit but little light, just as likely as not it is finished in painting and papering of dark, dull colors. Imagine how different the effect on the mind of a person occupying such a room in contrast with the same place treated with light, cheerful, colors.

In the finishing and furnishing of rooms devoted to social purposes, as parlor, dining-room and sitting room, all will probably agree upon having them bright and cheerful, and it may be even gay; yet there is a too prevalent inclination to gorgeous display, and so lavish brilliant colors as to detract from the guests or others in the room: particularly is it the case with carpets; it seems as if dinginess of carpets in general only catered to the vulgar taste for the gaudy and brilliant. It is true, tasteful carpets are to be had, but such as are too expensive for those of moderate means;

usually the figures are so large that they only suit large apartments. If such are put on the floor of a small room it is made to appear the smaller by it. The more intricate the design and smaller the pattern the better suited to a small room, and tends to make the size of the apartment greater. The same rule is applicable to papering and frescoing.

TOOLS AND FURNITURE.

The tools required and best adapted to the general house and decorative painter: To ensure success in the various branches we would recommend the following, viz: Oval, ground bristle varnish brushes, for all kinds of surface work; they are in general use in all first class establishments. A correspondent of the *Mechanics' Magazine*, (vol. 1, p. 229,) makes an objection to the use of round brushes, which must be allowed to have considerable weight. "Being made round," he says, "they are by no means well adapted, in that shape, for laying on a flat surface; the consequence is that painters invariably use their brushes but one way, for the very purpose of wearing them flat, which goes to prove the necessity of an alteration in their general shape." He then describes one which he made with a flat

handle, and found it to answer much better for all common purposes than the ordinary round brush. The handle was of beech, about an inch and half wide and three-eighths of an inch thick, and near the end (to which the hairs were tied) was beveled off to a thin edge.

Never attempt interior painting with a new brush, or on finishing coats of any kind until they have been worn to a certain extent on coarse work of some kind. This rule can be applied to brushes of all kinds. In this way you will obviate the trouble and vexation of having your work filled with hair and bristles, when expedition is most required, such as laying, flatting, demar, and other quick drying varnishes.

2. In the schedule of brushes are sash-tool, dust-brush and water-tool brushes for graining purposes; one four-inch (width) badger hair blender or softener; one two-inch hog's hair mottler; one grainer's brush; the last mentioned is used most in stain graining; it consists mainly in taking a half worn varnish brush and cutting out in small patches, at intervals, so it will have the appearance of a coarse comb.

3. Striping, ornamenting and lettering pencils: The first mentioned should be long and slim, and those best adapted to scrolling, &c., should be shorter and diamond pointed when filled. Filling pencils, for sign writing, are best when broad and

square pointed. Camel's hair pencils are in general use, and are the best adapted to the mechanical painter. Sable, martin and swan's-down are used most by the artist.

4. In order, will be a set of steel graining combs, which will vary in width from one-half to four inches; although combs equally as good can be made at a trifling cost, by procuring a piece of gutta-percha and cutting it into the desired size. Care should be taken to have the edges straight; take a pen-knife and cut in slanting each way to the depth of a quarter of an inch, leaving a small space between each tooth; by this method they can be made fine or coarse to suit the work; sole leather, or cork, is sometimes substituted, which answers a good purpose in the absence of steel or gutta-percha.

5. Putty and palette knife, chamois skin, sponge, step-ladder, lump and pulverised pumice stone, sand paper, &c.

Formerly a slab and muller were indispensable articles in the furniture of a paint shop. These have been, in a great measure, superceded by the iron paint mill, and the latter, in some degree, by the introduction of ground colors put up in tin boxes (commonly called "*cans*") of convenient size. These boxes, after the manner of fruit cans, are sealed by soldering a patch, or disc, of tin over the opening through which the contents were in-

troduced, and being hermetically closed, the paint remains unchanged until such time as it may be wanted for use.

The objection, formerly, to this mode of putting up colors, was the difficulty of opening the cans, particularly the smaller ones. This has, however been entirely removed by an invention, which is patented, and which most effectually overcomes the difficulty before mentioned. It consists simply in making one end of the can of thinner metal than the body and bulk of same, so that the said end may be cut out with a penknife. To get at the contents requires but an instant of time, and may be effected without waste of material, or even soiling the fingers.

TRUE ECONOMY IN THE USE OF PAINTS.

The fact cannot be too forcibly impressed on the minds of all who may be engaged in the business of painting, that *good results can be produced only by the use of good materials. The best are always the cheapest.* The main expense in painting is not in the cost of the paint, but in that of *labor* and oil; and it requires more labor to apply the *worst*, than to apply the *best* paint that can be obtained. The cheapening of paints by the admixture of adulterating materials, is carried on

to the last degree—probably to a greater extent than in any other article of general use and consumption.

The *experienced* eye can with difficulty detect the difference between colors which are pure and those which are highly adulterated, the only test being actual *use* and *application*. The safe way therefore, is to purchase such colors *only* as bear the name of some well known and responsible manufacturer.

The writer would not, however, be understood as advising the use of the best white lead or zinc for *all* kinds of painting; there are paints much more economical, because more durable, for out-side work than these. The ochres, or earth-paints, are, for many purposes, the best and cheapest. Paints are durable, mainly, because of the water-proof quality of the oil in which they are used. Some paints, the ochres for instance, are inert substances, and do not in any degree change the nature of the oil; while others, such as white lead, affect the oil chemically, and impair, in a measure, its tenacity—its property of resisting the action of water and the sun's rays.

Much of out-side wood work is painted simply to preserve it from the action of the weather, color and appearance being in such cases, unimportant considerations. Hence, it follows that whatever material will most economically produce

this result, is the most desirable, regardless of the name it may bear.

The natural deposits of ochres (colored earths) belong to what is known in geological nomenclature as the Jurassic period.

The time when these deposits occurred is a matter of pure speculation, and may as well be supposed to have taken place five hundred thousand years ago, as at any period more or less remote. As has been before remarked, had these materials been liable to change, it is only reasonable to suppose that such change would have occurred during the ages that they remained unappropriated to the use of man; and experience teaches that they are *not* subject to those changes which belong to most of the artificial products used in painting.

Hence the value of these native pigments. Economically considered, they are undoubtedly the most valuable of all the paints, where primary or prismatic colors are not absolutely required. The only change they are liable to, is a change of place. They may be, and are, of course, wasted by the slow disintegration of the coating which they form with the oil, but in color (when unmixed with white), they are inflexibly permanent, and stand exposure to the sunlight without fading or bleaching in the slightest degree. Nor are

they affected by the action of acids and gases, as are most of the artificial paints.

Now that the day of whites and light tints is passing away, and a better taste in decorative ornamentation is about to prevail, it becomes all those engagad in the business of painting, to consider to what extent these natural pigments may be made to take the place of the artificial compounds which have heretofore been considered indispensable, and for which it has been supposed impossible to find substitutes.

It must be remembered that the native pigments are in inexhaustible supply, that they are of almost universal distribution, and that they are not known to possess any value except for the purposes of painting; nor is the production and preparation of them supposed to affect the health of the workmen engaged in it unfavorably. So far, therefore, as they can be substituted for those paints, the production of which lessens the stock of useful metals, the use of them adds directly to the wealth of the country and of the world. Their application is strongly recommended whenever they can be made to take the place of the more expensive metallic substances as "TRUE ECONOMY IN THE USE OF PAINTS."

RAILROAD PAINTS AND COLORS.

These paints are designed to supply a want which has long been acknowledged—which is cheap, reliable, ready-made colors for painting the exteriors of country houses, fences, out-buildings, roofs, &c. They are the result of a series of experiments and tests extending over many years, and are confidently recommended as possessing all the required qualities for preserving wood, iron, stone, tin and plaster from the action of the weather.

They are warranted more water-proof than any paint ever before offered, and are fire-proof to as great a degree as any paint now in use. Being ground in oil perfectly fine, they work smoothly and easily under the brush, possess a density and covering property unequaled by other substances used in painting, and can be applied by those not skilled in the use of the paint brush, without any mixing or manipulation other than being thinned with oil, benzine or turpentine, to suit the work.

For painting freight cars, wood and iron bridges, iron buildings, tin or iron roofs, warehouses, store-

houses, out-buildings and fences, or exterior work of any description, the Railroad Paints will be found superior in every respect to any paint ever applied.

The Railroad Paints being mostly natural colors, are not liable to change or fade, as are most factitious pigments; and a given quantity of the former will cover a much larger area of surface than will the same quantity of white-lead, while the first cost is only from one-half to two-thirds as much.

Samples of the shades and colors of the Railroad Paints on painted paper, with prices, will be sent by mail, upon application accompanied by stamps to pay return postage.

The paints are put up in barrels, half-barrels, and in 100-lbs. kegs, ready for use when thinned with raw or boiled linseed oil, or turpentine, or benzine, as may be required to suit the work.

Many of the materials sold under various names, and recommended for painting, are in their nature totally unsuited for such purpose, being semi-transparent, and consequently wanting the property without which no pigment is valuable or economical, for ordinary exterior house painting. They are too coarse, gritty and sandy, which renders the spreading of them evenly, a task not easy of accomplishment. In hue and tone of color they are disagreeable and unpleasant. A

dingy chocolate-colored exterior is not in harmony with *any* landscape. No matter what the character of the structure may be—whether it be isolated or attached to other buildings—whether it be a corn-crib or cow-house—if the same be worth painting at all, it is worth painting with some regard for the laws of harmony and the "fitness of things."

Every house, barn, out-building, or fence, becomes, when painted, a more conspicuous object in the landscape than it otherwise would be; and the cost of painting the same in conformity with the laws of harmonious arrangement and proper adaptation to the surroundings, is no greater than to paint in such a manner as to set all these laws at defiance.

PREPARATION OF COLORS.

The art of preparing colors for the use of the painter, is one which requires the thorough practical knowledge of the nature and composition of the various pigments, and skill in the selection of the same, as well as an entire familiarity with the different degrees of fineness which the colors may require to fit them for the purposes to which they may be applied. Some paints lose their brilliancy

and beauty by too much crushing and grinding, and become dull, pale, and comparatively worthless, while others require grinding to the last degree of fineness, to develop the color which is in them. Notwithstanding these facts, which are known to every painter who has been properly educated in his profession, the business of preparing colors for his use is, to a great extent, in the hands of persons entirely ignorant of the nature of paints and the requirements of the painter.

Active and ever increasing competition has begotten a strife, not as to who shall produce the best possible paints, but as to who shall put upon the market the worst article which can, by any stretch of fancy, be called a "ground color." This evil has, however, like most others, worked out (or is in process of working) its own cure. Experience is teaching the lesson, where it has not already been learned, that "cheap paint," that is, paint made to sell at a low figure by means of extreme adulteration, is "dear at any price." This rule, however, is not of universal application, but it is intended to apply to painters, mostly, who have the means and knowledge required to avoid the waste of good material.

There are many cases where a small quantity of color is required to produce a certain tint, and colors cannot always be obtained in such small

quanties as may be desired. In such cases, it would be advisable to buy a cheap article and consume it all, rather than to buy the best and suffer a large portion of it to be wasted. It must be borne in mind by the painter, that in cheapening paints by the admixture of adulterating materials, the reduction must be made wholly in that portion of the mixture which possesses the coloring property he requires. There can be no corresponding cheapening of *all* the materials. The oil, the labor, and packages cost as much for the poorest as for the best colors; therefore a color which sells at twenty cents per pound may possess, really, three times as much intrinsic value as one which sells at one-half that price. There can be no better rule for a painter to adopt, than to *buy always the best colors*, and in *packages as large* as the requirements of his trade will justify, with a view to strict economy and the prevention of waste.

PREPARATION OF WORK FOR PAINTING.

In preparing work for painting, too much care can not be exercised, as succeeding coats, and the final result depend very much on the proper condition of the work when the priming coat is applied. First, all the rough places in the wood should be rubbed down with a block covered with sand-paper; and the moldings and beads should be well cleaned out with sand-paper. Then, (and this is a matter of prime importance,) *every knot* however small, every indication of sap on the wood, or discoloration of any kind, and every appearance of pitch or gum, should be carefully varnished over with *white shellac varnish*, if the work is to be finished in white or light tints; or, with varnish made from unbleached or common shellac, if the work is to be finished in dark shades. The common shellac, in the latter case answers equally well with the bleached article, and at less cost. This should not, under any circumstances be neglected, as it is impossible, in the nature of things, otherwise to make good

work. Shellac varnish is made simply by dissolving bleached shellac in alcohol, in the proportion of two pouuds of the former to one gallon of the latter. More or less of the gum may be used to give the required strength.

The varnish is easily diluted by the addition of alcohol, or made stronger by the addition of more shellac. [In cases where color is not important, the ordinary uubleached shellac will answer, and the cost is much less.] It is most readily prepared in a tin can or bottle, which requires occasional shaking during the process. A gentle heat facilitates the operation. It may be prepared in greater or less quantity, and rendered perfectly transparent by passing it through a filter paper. It then becomes the best possible varnish for pictures. The alcohol must be of a strength of ninety-five per cent.

When work is to be finished with two coats, the putty used for stopping the nail-heads, and other indentations, should be made of white-lead, worked up with common whiting to the proper consistency, and the filling should be done after the first coat shall have become well dried. When more than two coats are to be applied, the filling should be done between the first and second coats with ordinary pure linseed-oil putty.

It should be adopted as a rule, never to apply *pure white* as a priming coat, no matter whether

the work is to be finished with *one* or *four* coats.

The result will always be more satisfactory, if the first coat be stained. A little finely ground lamp-black answers as well for this as any thing.

The only way to produce solid uniform work is by making every succeeding coat *lighter* in tint than the one which preceded it. This is specially the case with walls and other extended flat surfaces. *No matter what the finish is to be, the first coat should always be darker than the one which succeeds it;* and the darker the shade of the finishing coat the more important it is that this rule should be observed. If the work is to be finished with black, prime with black; if with green, let that be the color of all the preceding coats. If with blue, let that color be the ground work. What can be more stupid than applying to work which is to be finished in imitation of black walnut, a priming coat of white? *All work should be primed especially with regard to the finishing color.*

There is not used half enough of dark colors in priming applications.

Venetian red, finely ground in boiled oil, deeply stained with black, and used very thin, in order to stain the wood as much as possible—is the best first coat for work which is to be finished in imitation of black walnut or other dark wood. The succeeding coats should be as dark as may be,

with a view to the proper shade of ground work for the graining. In such case, if (as must happen in the ordinary course of events) the work becomes bruised or "chipped" by an accidental knock from a chair leg or other article of house furniture—the general appearance of it is little impaired thereby. Quite the contrary, however, is the case if the underneath coats are white. There, an accideut of the kind before mentioned, shows a white spot, which strangely proclaims the work to be a delusion and a sham. Dark colors, too, as the Venetian red before mentioned, make better foundations than white-lead or zinc; they dry harder and "rub" better, and, what is most important, cost less.

This matter having been duly considered, let us now proceed to the coat succeeding the first. Before applying a second coat, the first should be carefully rubbed, and all the nail-heads and other indentations carefully stopped with pure linseed-oil putty, using for flat surfaces a square-bladed putty-knife.

Puttying with the fingers should never be tolerated, (good work is now the subject under consideration.) This done, the whole should be carefully examined to ascertain if the oil in the former coat shall have revealed any resinous or pitchy spots not previously covered with the shellac. [But for the present high price of alcohol,

the writer would recommend the application of thin shellac varnish to the whole surface between the first and second coatings.] These preliminaries being attended to, the work may be considered ready for a second coat. The directions as to rubbing with sand-paper are to be observed in all succeeding coats. As a rule, on *interior* work, paint should never be applied to a surface which has not been previously rubbed.

Sand-paper for fresh work, and pumice-stone for old work. Always distrust the education of a painter, in his trade, who goes to work without a lump of pumice-stone, a sheet of sand-paper, a putty-knife, and a rag to wipe off the spatters—sparks, as the Irish not inaptly call them.

Apropos of spatters! Every painter has seen (the result, too, of unpardonable negligence) plates of glass so covered with spatters, that, to remove them, would require more time than would serve to paint the wood-work of a "full-trimmed" window.

In priming work which is to be finished in oak, finely-ground French ochre is recommended. The objection to this pigment, that it does not work smoothly and easily under the brush, has risen from its coarseness. Finely ground in boiled oil, it works as smoothly as white-lead, and makes an excellent foundation for the succeeding coats.

For walls, the first coat should be as dark in shade, and as thin as practicable—the object being to stain the plaster as much as possible. Indeed, if the whole mass of plaster could be stained through and through, it would be desirable to so stain it.

The use of glue in wall-painting is of doubtful propriety. It should never, under any circumstances, be put on until after the second coat, and then rubbed on with a rag very lightly. In first-class work, however, its use is not recommended.

Plaster, mixed with weak glue size, which prevents its setting too rapidly, is the best material for stopping walls preparatory to painting, and each coat of paint should be carefully rubbed with worn sandpaper before the succeeding coat is put on.

For preparing walls, a small pocket-trowel will be found a most serviceable tool; or a trowel-shaped putty-knife, which is now coming into general use.

The preparation of ceilings for white-washing (or kalsamining as the operation is sometimes pretentiously called,) is an operation requiring some skill and knowledge of "how to do it." A dirty ceiling which has been subjected to successive coats of white-wash, whether of lime, or whiting and glue size, can not be made solidly and smoothly white by additional white-washing. The mass

has become spongy, and sucks up the water so quickly that the material cannot be evenly distributed. In such case, the only way is to begin anew—to go at once "down to hard pan," removing all the previous applications, by washing and scraping. This is best effected with a broad-bladed, square-pointed putty knife, keeping the ceiling wet meanwhile. Plaster (hard finish) is not of uniform density, and some spots are much more absorbent than others. To remedy this, a mixture of soft soap and alum, dissolved in water should be applied with a broad kalsomine brush.

All priming for work to be finished in oil should be diluted in oil, using not a particle of turpentine. In no case should wood in a wet state be painted in oil, the consequence in such cases, being the speedy decaying of the wood or the sealing, and casting off of the paint. Priming coats, on exteriors, require to be thin, using only a small quantity of color; where it is applied in thick masses the wood will drink up the oil, leaving a crust on the surface which will soon disappear in flakes (or dust off,) having the appearance of flour. For work exposed to the weather, the turpentine should be wholly omitted, and oil alone employed in all coats.

Second Coat for Interiors.—Mix with raw oil and turpentine, equal parts, or dilute ready-

ground colors wholly with turpentine; add a small quantity of dryer, (if dark, use the liquid brown japan, or patent dryer; if white, sugar of lead is best.) As to the quantities required, experience must be the teacher, as some paints do not require the same amount as others. This coat should be put on as thick as will spread and rub out, cross smooth lightly with the tip of the brush.

THIRD COAT.—Same as the second, with the exception of using more turpentine, it requiring to be a trifle thinner.

Coats for out-side may be of the same consistency as the above, using raw or boiled linseed oil.

FLATTING.—Consists in employing turpentine in the place of linseed oil in diluting colors, using only sufficient oil to bind the paint and fix it on the ground, say one-fifth oil to four-fifths turpentine. This requires to be mixed thin and spread on quickly; finish lengthwise, without cross-smoothing with light sweeps of the tip of the brush; this will set in less than thirty seconds, after which it will not do to retouch, or it will show a gloss. Care must be taken to spread this on quickly and evenly. The room requires to be kept close, and free from any draft of air.

PORCELAIN FINISH.—First and second coating with lead same as above; the third coat requires to be the best French zinc, mixed flat; when

dry and hard, you will mix your porcelain finish by adding white demar varnish to your zinc flatting, and flow on a coat the same as you would varnish. Each coat should stand two or three days before receiving another.

Sulphate of zinc, or sugar of lead are the only proper dryers for flatting; either of them may be dissolved in water, and stirred into the color, adding it gradually.

Flatting or varnishing should be finished (each piece) before commencing another or you will make bad work.

Have a rule and system in your work, if you would have success. We will take a door for instance, for painting which there is an established rule, that is but seldom deviated from, viz:—

Rules for Painting Doors.—The first important consideration is to have your door thoroughly sand-papered and dusted, (not forgetting the top, as there will always be found a quantity of dust accumulated, which your paint or varnish brush is apt to gather and distribute on your paint, &c.) After these precautions have been taken, next proceed to divest the door of its trimmings, which is simply and quickly done, requiring the use of a screw-driver only; next whittle out a stick of hard wood and shove it through the key or knob-hole, as a temporary handle; commence on either of the upper pannels, by flowing in your

color or varnish around the edges, working it well into the moldings; then coat the flat surface of the panel even; first, lay off the work up and down, then cross, smooth and finish up and down with the tip of the brush lightly, wipe up all surplus paint on the moldings, finish remaining panels, (*i. e.*, on that side of the door,) the same. The object is to complete one side before commencing another; next the edges, cross-pieces and uprights in rotation. In painting doors, indoors, for kitchen, dining-room, and sitting room, the panels should be painted in a lighter color than the frame work. The same harmony should be observed in the remaining wood-work, the door and window casings should be light, the foot or base dark, and the moldings above it light.

STAINS IN IMITATION OF VARIOUS KINDS OF WOOD.

BLACK No. 1.—Drop a little sulphuric acid in a small quantity of water, brush over the wood and hold it to the fire; it will be a fine black and receive a good polish.

BLACK No. 2.—Take half a gallon of vinegar, an ounce of bruised nut-galls, of logwood chips, and copperas, each half a pound, boil well; add half an ounce of the tincture of sesqui-chloride of iron, formerly called the muriated tincture, and brush on hot.

BLACK No. 3.—Use the stain used for iron.

BLACK No. 4.—Take half a gallon of vinegar, half a pound of dry lamp-black, and three pounds of iron-dust, sifted; mix, and let stand for a week; lay three coats of this on while hot, and then rub with linseed oil, and you will have a fine black.

BLACK No. 5.—Add to the above stain an ounce of nut-galls, half a pound of logwood chips, and a quarter of a pound of copperas; lay on three coats, oil well, and you will have a black stain that will stand any kind of weather.

BLACK No. 6.—Take a pound of logwood chips, a quarter of a pound of brazil wood, and boil for an hour and a half in a gallon of water. Brush the wood several times with this decoction while hot; make a decoction of nut-galls, by simmering gently, for three or four days, a quarter of a pound of the galls in two quarts of water; give the wood three coats of this, and while wet lay on a solution of sulphate of iron, (two ounces to a quart,) and when dry, oil and varnish.

BLACK No. 7.—Give three coats with a solution of copper filings in aqua-fortis, and repeatedly brush over with the logwood decoction, until the greenness of the copper is destroyed.

BLACK No. 8.—Boil half a pound of logwood chips in two quarts of water, add an ounce of pearl-ash, and apply hot with a brush; then take two quarts of the logwood decoction, and half an ounce of verdigris, and the same of copperas, strain and throw in a half-a-pound of iron-rust. Brush the work well with this, and oil.

No. 9. BLACK WALNUT—Burnt umber mixed in vinegar, or stale ale; apply with a sponge. Solution should be very thin; this will require from two to four coats of varnish.

BLACK STAIN FOR IRON WORK.—To one gallon of vinegar, add a quarter of a pound of iron rust; let it stand for a week; then add a pound of dry lamp-black, and three-quarters of a pound of

copperas; stir it up for a couple of days. Lay five or six coats on your work with a sponge, allowing it to dry between each coat. Polish with linseed oil and a soft woolen rag, and it will have the appearance of ebony.

STAIN FOR BLUE.—Dissolve copper filings in aqua-fortis; brush the wood with it, and then go over the work with a hot solution af pearl-ash, (two ounces to a quart of water,) till it assumes a perfectly blue color.

BLUE No. 2.—Boil a pound of indigo, two pounds of logwood, and three ounces of alum in a gallon of water; brush well over until thoroughly stained.

IN IMITATION OF BOTANY BAY WOOD.—Boil half a pound of French berries, (the unripe berries of the rhemnus infectorius,) in two quarts of water, till of deep yellow, and while boiling hot give two or three coats to the work. If a deeper color is desired, give a coat of logwood decoction over the yellow; when nearly dry, form the grain with No. 8 black stain, used hot, and when dry, rub over the work thoroughly with a dry woolen cloth and varnish.

MAHOGANY COLOR, DARK, No. 1.—Boil half a pound of madder and two ounces of logwood chips in a gallon of water, and brush well over while hot; when dry, go over the whole with a pearl-ash solution, two drachms to the quart.

No. 2—Put two ounces of dragon's blood, bruised, into a quart of oil of turpentine; let the bottle stand in a warm place, shake frequently, and when dissolved, steep the work in the mixture.

No. 3.—Boil one-half pound of logwood chips in two quarts of water; let cool, and add a handfull of walnut peelings. Boil again, strain the whole and add one-half pint of vinegar. This stain is designed for beech, maple, etc.

No. 4.—This is simple and quickly done. Mix burnt sienna (dry) in vinegar, solution to be thin; apply with a sponge. This can be grained and shaded with the same thickened up, which should be ready prepared in another vessel, and applied while the first coat is wet. If you do not succeed in getting designs to suit, this coat can be rubbed off by saturating your sponge in vinegar and wetting up the surface; will do to varnish in half an hour. The above rule can be observed in graining in ale.

No. 5.—The ground work to be a bright or ange, (see rules for mixing tints.) Mix burnt sienna in ale or vinegar, same as in No. 3, using a sponge. The grain can be combed out by using a stiff seam brush, such as is used by ship and boat painters, for working paint in seams of the planking; lights can be rubbed out with a damp cloth. Shade with any of the black stains. Finish

panels first; next cross pieces; end with the uprights. From three to five coats of varnish will be required on all of the distemper staining and graining.

No. 6.—To prepare walnut to imitate mahogany is simple and has a very desirable effect, which is done in the following manner: Apply aquafortis to your work by means of a rag made fast to a stick, bound on with twine; a brush cannot be used, as it would very soon destroy it. Coat the work as evenly as possible and set it in the sun to dry; if no sun, heat the aquafortis in by a stove. Finish up with varnish or French polish.

LIGHT RED.—BROWN.—Boil half-a-pound of madder and a quarter of a pound of fustic in a gallon of water; brush over the work when boiling hot until properly stained.

No. 2.—The surface of the work being quite smooth, brush over with a weak solution of aquafortis, half an ounce to the pint, and then finish with the following: Put four ounces and a half of dragon's-blood and an ounce of soda, both well bruised, to three pints of spirits of wine. Let it stand in a warm place, shake frequently, strain and lay on with a soft brush, repeating until of a proper color; polish with linseed oil or varnish.

STAIN FOR PURPLE.—Brush the work several times with the logwood decoction used for No. 6 black, and when dry give a coat of pearl-ash solu-

tion, one drachm to a quart, taking care to lay it on evenly.

STAIN FOR RED.—Boil a pound of Brazil-wood and an ounce of pearl-ash in a gallon of water, and while hot brush over the work until of a proper color. Dissolve two ounces of alum in a quart of water, and brush the solution over the work before it dries.

No. 2.—Take a gallon of the above stain, add two more ounces of pearl-ash; use hot and brush often with the alum solution.

No. 3.—Use a cold infusion of archil, and brush over with the pearl-ash solution used for No. 6 dark mahogany.

STAINS IN IMITATION OF ROSEWOOD, No. 1.—Boil half-a-pound of logwood in three pints of water till it is of a very dark red; add half an ounce of salt of tartar. Stain the work with the liquor while boiling hot, giving three coats; then with a graining brush form streaks with No. 8 black stain. Let the work dry, and varnish.

No. 2.—Brush over with the logwood decoction used for the No. 6 black, three or four times. Put half a pound of iron filings or turning chips into two quarts of vinegar; then with a graining brush, apply the iron filings solution in the form required, and wax or varnish. (The grainer's brush may be made by taking an old stub varnish

brush and cutting out the bristles at intervals of an eighth of an inch, in the shape of a comb.)

No. 3.—Used cold. Alcohol, one gallon; camwood, two ounces; let them stand in a warm place twenty-four hours; then add extract of logwood, three ounces; aquafortis, one ounce; and when it is dissolved it is ready for use. It makes a very bright ground, like the most beautiful rose-wood. One, two or more coats, as you desire, over the whole surface. Use No. 8 dark stain for waves. Varnish or wax.

YELLOW STAIN, No. 1.—Brush over with the tincture of turmeric.

No. 2.—Warm the work and brush over with weak aquafortis; then hold to the fire. Varnish or oil, as usual.

CHERRY STAIN.—Soft water, one quart; anotta, two ounces; boil in a glazed pipkin until the anotta is dissolved; add to this a piece of potash half the size of a walnut, letting it remain on the fire from a half to three-fourths of an hour.

TO RENOVATE FURNITURE.

The most successful method is, first to saturate the surface with olive-oil, then apply a solution of gum arabic in boiling alcohol. This mode of

varnishing is equally brilliant, if not superior, to that employed by the French in their most elaborate works. But another mode may be substituted, which has less the appearance of a hard varnish, and may always be applied so as to restore the pristine beauty of the furniture by a little manual labor. Heat a gallon of water, in which dissolve one pound and a half of potash; add a pound of virgin wax, boiling the whole for half an hour, then suffering it to cool, when the wax will float on the surface. Put the wax into a morter, and tritrate it with a marble pestle, adding soft water to it until it forms a soft paste, which, laid neatly on furniture, or even on paintings, and carefully rubbed when dry with a woolen rag gives a polish of great brilliancy, without the harshness of the dryer varnishes.—*Copied from Enquire Within.*

Polish for New Furniture.—Dissolve gums copal and shellac, in proof alcohol, of each two ounces; dragon's blood, one ounce; to be kept in a warm place in an air-tight jug or bottle. This polish should be applied with a sponge; your room to be warm, say from 75 to 80 degrees temperature. The work will require from three to four coats in succession, say twenty minutes apart. Wet your rubber in alcohol, and rub briskly over the surface; after this operation, you will go over the surface with a piece of beef tallow; dust

on superfine pumice-stone from a bag made of coarse woolen flannel, and rub it with felt or the heel of the hand. Wipe off with cotton cloth. Repeat the last operation, substituting tripoli or rotten-stone.

STAIN FOR BEDSTEADS, ETC., IN IMITATION OF BLALCK WALNUT.—Dissolve pulverized gum asphaltum in spirits of turpentine, in this proportion: Two pounds of gum to one gallon of the liquid, the ingredients to be put in a closely covered iron kettle, and placed upon a stove or furnace with moderate heat, stirring frequently until dissolved; pour the whole into a stone jug while hot, reducing with turpentine to the desired consistency for use. You can produce any desired shade, as the greater the number of coats, the darker the work. By adding a small quantity of lamp-black, you will have a jet. Should your work spot, it can be obviated by adding a little copal or shellac varnish.

GRAINING.

To become proficient in the various branches of graining, requires taste of the highest artistic order, combined with perseverance and imitative skill. It will be necessary for the beginner or novice (to which this work is especially dedicated,) to procure panels or veneers of the different kinds of wood, to copy from. These can be procured of any furniture manufacturer; good varieties of native oak can be found at any cooper shop, by selecting from barrel staves; dress them down smooth, and brush them over with a coat of raw linseed-oil, to bring out the grain. The next required will be a few pieces of board, painted on both sides, to practice upon. The writer will be as brief as possible, giving only a few of the simplest rules to be observed, and easily comprehended by the learner. Oak, being the most in demand, the pupil should practice upon in preference to any other kind of wood; for which we will give the following instructions:

To Grain Oak in Oil.—Light.—The ground color for the above should be cream color, mixed

to dry with a gloss; this to be made with white lead and brought to the desired tint by the addition of yellow ochre or French yellow, for medium shade; lead, Oxford ochre, and venetian red, for dark oak; yellow ochre, orange chrome, venetian red and burnt umber, the last mentioned in equal quantities in bulk, mixed up thin in oil; add to the white lead as before mentioned. Grain color, — Raw umber and raw sienna, equal parts, mixed in boiled oil; add to this in small quantities in equal parts, of beeswax and whiting, which would be better to boil the whole in a mass and strain when cold through two thicknesses of muslin. Dilute with turpentine to the desired consistency for use, which should not be too thin. Use sugar of lead as a dryer. Your grain color being now ready, you will proceed to coat your work over, using a medium-sized varnish brush for this purpose, one that has been worn to some extent would be preferable. Lay your color on even and brush out, in order not to have it too thick, as uniformity in this coating is of the greatest importance. Comb with coarse comb first, lengthwise, then with the fine comb, giving it a light waving zigzag motion. Wipe out the grains and lights with strips of soft muslin cloth, by holding it over the thumb nail, taking a clean spot of cloth for each wipe; the blank end of the steel comb can be used to advantage

by placing the muslin over it in the same manner as over the thumb. It would not be advisable to practice too much from one piece of oak, as you will be apt to acquire a stiff and formal style. This should be done with a free and careless motion of the hand, yet having an eye to the general character of the wood you are to imitate. Having your work combed and figured, it is ready for the glazing. As soon as the grain color has become sufficiently dry and hard, glaze with asphaltum dissolved in turpentine; add a small quantity of boiled oil to prevent its drying too quick. Wipe out large patches of lights; use sash-tool for putting in dark knots, etc. Finish with three coats of varnish.

To Grain Mahogany in Distemper.—Ground color composed of either of the following ingredients: Red lead, venetian red and orange chrome; or, chrome yellow, and orange red lead, about one-third of red lead or sufficient to tint to a bright orange. Grain color, burnt sienna, mixed in ale or vinegar. First dampen your work with the fluid, as it will prevent the color from crawling or pitting. Apply grain color with a soft brush or sponge; blend crosswise, wipe out the light spots with a damp cloth or chamois skin; blend till soft, then give the whole a thin coat of quick drying varnish. Glaze when dry by adding a small quantity of Vandyke brown or asphaltum

to your grain color, to make it a shade darker, which should be quite thin. Rub it over the whole surface and blend it lightly crosswise. Work in the check grain with the hog's hair over grainer

To Grain Maple in Distemper.—Ground, cream color, made with white lead and yellow ochre. Grain color, raw sienna and raw umber, equal parts; mix the same as for mahogany. Apply with large sash-tool or sponge. Wipe out the lights which make the curl, with a damp chamois skin or wash-leather; blend lengthwise of the curl. Varnish and glaze when dry, using asphaltum and victoria lake in small quantities. Wipe out patches of light with the sponge and blend crosswise. give the work a second coat of varnish; when dry, top grain with glaze color.

To Grain Black Walnut in Distemper.—Ground, drab color, composed of white lead, yellow ochre, venetian red, and black. Grain color, Vandyke brown and burnt sienna; the grain same as for mahogany, with the exception of the blaze, which is more regular and runs gradually from the bottom to the top. Glaze, and finish the same as for mahogany.

PAPER AND WOOD HANGING.

The first consideration in this important branch is to have the walls in condition to receive the paper. Old walls, that have had repeated coats of coloring and whitewash, should have a thorough scraping. When this part of the operation has been done, give the walls and ceilings a dusting; work out all particles of dust and plaster from over door and window caps, rails, &c.; your walls are now in a state to receive the size, which is prepared as follows:

GLUE SIZE.—This is simply glue and water, the ordinary black, or cabinet maker's glue, is the best adapted for walls, &c. When required for sizing wall paper preparatory to varnishing, the white is required. Before using, the glue should be broken into small pieces and soaked in cold water for some time to soften it, then boiled by a slow heat until dissolved, and again allowed to congeal by cooling. When desired for use, thin with hot water to the desired consistency. One thorough coating will be sufficient; apply with a

whitewash or kalsomine brush. When this is dry, fill all inequalities, such as nail holes, cracks, etc., with plaster of paris mixed in glue water; this will dry quickly and does not contract or stain the paper. The tools required for paper hanging are long trimming shears, wet shears, straight edge, paste board, plumb-bob, rule, paste and paper brush, paste-pail, size kettle and step-ladder.

To Make Paste.—Paste for all ordinary purposes can be made as follows: (The quantity herein mentioned will be sufficient for a day's work.) Sift and heat up four pounds of the best white wheat flour in cold water, until all the lumps have disappeared, and it is stiff like pudding batter; add to this two ounces of alum, then pour boiling water on the mass, stirring it briskly at the same time, until it begins to swell and lose the light color of the flour, when it is cooked. Stir it frequently, to enable the steam and gas to escape; when cool it is ready for use. It is not a good plan to thin paste with cold water; if it should become too thick, use boiling water and stir it well in. In this way you are not so liable to contend with blisters and wrinkles in the paper.

Trimming Paper.—In trimming wall paper your work should be to the right as you unroll. I have found it a very good plan to trim over a table or paper board; the latter is the best. Get

this in the position you will require it for pasting your paper. Sit facing the board, unroll the bolt of paper a few feet, and let it drop on the floor on the opposite side of your board, retaining the top of the paper in the left hand near the centre; then with the long shears trim off the blank margin close to the print or figure. Use caution and not deviate from the line, or it will show badly when on the wall. Trim the distance of three or four feet, and commence to roll as fast as you trim. Thick paper should be trimmed within one-eighth of an inch of the margin on the opposite side. Before cutting your paper preparatory to hanging, ascertain the number of breadths required, and proceed to cut them in the following manner:— First determine on some "land-mark," or figure to cut from, in order to have the paper match, and avoid waste; it would be better, however, by first getting the extreme hight of the wall from base to ceiling, and determine length from this. Cut square across your paper, having the top or head to your left hand; make this fast to the head of the board by placing a weight upon it, unroll the required length and cut off, placing a weight upon this also to prevent its coiling up; now take the next strip, and so on, cutting the top at the same mark, leaving the remnants for over the doors and windows. It would not be advisable to get too many pieces on the board at

one time, especially for the beginner, for reasons that will suggest themselves. Now turn the paper bottom side up, which will bring the work side to you. Brush all wrinkles down with the hand, and have every piece lay parallel with the board, the board to be the same width as the paper. Place your paste pail to your right and apply the paste with a flat brush; a medium-sized whitewash brush is the most in use.

Commence at the foot of the paper, spreading from right to left and lay it off crosswise, keeping the points of the fingers of the left hand on the paper at the same time, to hold it from sliding on the board. Double the paper at the bottom enough to clear it from the floor when taken from the board; you will now take the upper corner on the work side, (*i. e.*, next to you,) between the thumb and finger of the right hand, and the opposite corner with the left. Raise it up at arm's length from the board and hang. Commence at a bead or in a corner, where it will not show in finishing up. In following these rules you will hang to the left. Now get your work edge on the line, and press the top of your paper against the wall and draw the flat of the hand across the top to hold it. Stroke the hand next down the paper and brush out each way, repeating the operation until the strip is on. Work the paper close to the base, and draw the point of the shears across to mark it;

then draw it off a few inches, cut to the line and place it back. Various implements are used for putting on paper; for satin papers, many prefer the flat hand; for forty-inch tints and stamped gold, a soft towel, or wooden roller covered with cloth, is the best; for ordinary cheap papers, a brush-broom; wood hangings, a wooden scraper. Flock papers, forty-inch tints and wood hangings are put on without lapping; they require to be cut with a sharp knife, using the straight edge as a guide, and butted together. Gilt mouldings are invariably used for border on these hangings. In paneling there is no established rule; it depends on the taste of the workman in a measure, he being the one supposed to know how to produce certain effects, and is expected to display his knowledge and judgment in such matters, by taking into consideration the location and position of doors, windows, mantle, stationary furniture, etc. The styles and vails to be governed by the height of room; to a ten feet room, about six inch vails. The use and application of wood hangings are quite new, and to some unheard of; in order to enlighten that class of readers, we subjoin the following extract from *Moore's Rural New Yorker*:

WOOD HANGINGS, HOW MADE, HOW PUT ON AND HOW EXPENSIVE.—Various lengths of the body of a tree, or intermodes of the limbs, are put

into a turning machine and turned until the solid body of fibers is spread out to the thinness of a shaving, and lies like an unrolled piece of wall-paper, in lieu of which it is used; or, imagine, if you can, the body of a tree composed of a roll of gold foil, three feet long and a foot in diameter, rolled so compactly as to appear to be solid metal, but, by means of a machine, which moves a long, sharp or cleaving edge, round and round it, separating the over from the underlying layer, you will understand how a length of round timber is turned inside out, or clear out of itself.

Different varieties of wood give different patterns or grain to the hangings. The woods most largely used, are black walnut, maple and ash. Black walnut and ash hang well together, the contrast between the two permitting the darkest to serve as bordering, or defining designs if desired, about mantels or panel-like places. For halls and dining-rooms, these hangings seem especially fitted, and could be put on to simulate a cathedral entrance or interior, by cutting the walnut to represent pillars and connecting at the top by arches. This "wooden paper" is applied to the wall in the same manner as ordinary paper hangings, with flour paste; the walls should be smooth and free from white-wash; after it is applied and dry, a coat of oil is put on, which develops the marvelous designs inwoven by nature. A coat of var-

nish completes the illusion of walls beautifully veneered. When soiled you can wash the surface. Whether there is any wear out to these hangings we can not say; we have been informed that they are very durable, and "considering all things," as cheap as paper hangings. The cost is three cents the square foot; those of satin-wood come a little higher, and mahogany also, which is really no handsomer than black walnut. The rolls are in various widths from twenty to forty inches.

TO MAKE WHITE WAX

The white wax is nothing more than the yellow after it has passed through bleaching processes. This is done by allowing a thin stream of melted wax to flow into cold water, by means of which it gains a resemblance to thin wavy ribbons, which, being exposed to the joint action of water, air and sunlight, gradually loses its yellow color and being remelted assumes the appearance of the bleached wax.

TO PAINT AN OLD HOUSE.

When the paint has disappeared to such an extent that the surface of the siding is rough and full of minute sun-cracks, the dry and porous will absorb three times as much oil as will be required to cover the same extent of surface, were the siding new and just planed; indeed the absorbent capacity of such weather-beaten lumber is so great, that the dry grain of the timber will absorb a large proportion of the oil and leave the paint on the surface, where it will shortly dry into a powder that the storms will remove in a comparatively brief period. The grand object in covering the surface of the siding with paint, is to protect the grain of the wood from getting soaked with water, as the grain expands every time water is applied to it, and contracts, forming cracks on the surface, whenever it has an opportunity to become dry. These are the conditions and difficulties to be met; the object will be to cover the surface of the old boards with a durable paint, at the cheapest possible expense. If good

oil paint be applied, until the small cracks are all filled, and the porous grain of the dry wood will absorb no more oil, a coat of paint will be formed that will wear almost an age. But the large quantity required would cost much more than most people care to expend in painting an old house, when some cheaper material will subserve the same satisfactory purpose.

The idea is to fill the porous and cracked surface with a cheap material that will prevent the oil from separating from the paint and entering the wood. It is not essential to the durability of the siding, that the wood beneath the surface be saturated with oil, so long as the surface is properly protected with a thin coating impervious to water. Make a gallon of good paste, of wheaten or rye flour, then have ready a pound of cheap rice, and a half pound of cheap glue, boiled to the consistency of very thin molasses, that may be poured out quickly, and stir the three ingredients together while they are hot, and apply it with a brush, so as to fill up all the sun-cracks, and cover the rough surface of the siding, thus forming a smooth foundation for the oil paint. A larger quantity may be made with the same proportion of materials as we have indicated. The siding should be scraped clean and smooth; in case moss has collected on the surface, then sizing sufficient to fill the cracks should be applied with care, while

warm, by some person who will lay it on smoothly. In case it be daubed on too thickly, a heavy scale will be liable to peel off. Cover the coat of sizing immediately with good oil paint. A few gallons of such sizing, costing only a few dimes, will save more than fifty dollars in painting a building, and will effect a satisfactory purpose.

FROSTING.

This is glass blown very thin and crumbled fine. It can be procured at any glass factory and used in connection with sand or smalts.

SMALTS.—These can be procured at any drug or paint store of any shade or color, although the blues are most in use for sign work. Blue is manufactured from ground glass and colored with Cobalt, by means of heat and will retain its lustre for ages.

FLOCK.—This is simply the lint or fine shearing of colored woolen cloths, and is used to a great extent in the manufacture of wall papers and borders. For signs, only in-doors.

SANDING.—This is dusted over exterior work, and should be applied to the third or fourth coat of paint, the paint to be mixed stiff in drying oil. Dust on the sand while the paint is wet. A small

bellows can be arranged with an extra chamber for the sand, make this fast to the nose of the bellows in such a manner that the wind will pass through it, have the top perforated the same as a watering pot; this can be used under projections, etc., to a good advantage. The best sand for this purpose can be found on the shores of our inland lakes, and is kept for sale in all principal towns and villages.

GLAZING.—Prime sashes before glazing. The convex side of the glass to be out, fill the rabbot with soft putty, and press the glass gently down until it is firmly imbedded, press near the edges and not in the centre of the glass, or it will be liable to crack; use four tins, drive them in the sides one-fourth of the distance from the end, glaze on the outside, and cut off all surplus putty from the inside which may have oozed out from the bedding; great caution should be used and not have the putty project over the line of the moulding, as it will show badly from the inside. It should be brought into a parallel line as nearly as possible; wash the glass with cold water, using a sott water brush; a large sash-tool will answer.

KALSOMINING.—This method of coloring walls, ceilings, &c., is simple, yet far superior to the old lime and white-wash method; this is done by making a strong glue water, add to this while hot, whiting, stir it in thoroughly, use any of the dry

colors for tinting, strain the whole through a coarse cloth; this should be kept warm while using, when cold it will become like jelly; it can be kept for use any length of time. The above is applied with a broad flat brush designed for that purpose. The dry colors used for tinting, work better when mashed up fine in glue water. For blues use the common liquid blueing as used for washing purposes.

MUCILAGE PASTE.

An interesting article was published some years ago, informing us how to make a very cheap mucilage from common starch. It is roasted while perfectly dry, somewhat like coffee, but not scorched or burned. This converts it into "British," which is dissolved in water and is used in immense quantities in calico printing works for glazing and stiffening the finer goods. Previous to this discovery, gums arabic and senegal were used for the same purpose, and the demand was much greater than the supply. The use of this article lessened the price of calicos and was a great benefit to mankind. It was first found out by a starch factory being burned in England. The scorched gum from the starch having stuck the

firemen's clothing together fast. For many years it was kept a great secret, and is still not generally known. This is the basis of mucilage sold in stationer's shops.

LIQUID GLUE.

Dissolve common glue in vinegar or water slightly acidulated with nitric acid. This is the the same as Spaulding's glue, and ought to be kept by every household, as any article broken can be repaired with it, and it is always ready for use. Mechanics think that dark glue is more adhesive than the finer sorts, which are used by milliners.

TO MAKE A SIMPLE WHITE PAINT.

Skim milk, two quarts; fresh slack lime, eight ounces; oil, six ounces; white burgundy pitch, two ounces; Spanish white, three pounds. The lime to be slacked in water, exposed to the air, mixed in about one-fourth of the milk, the oil in which the pitch is to be previously dissolved, to be added a little at a time. Then the rest of the milk, and

afterward the Spanish white. This quantity will cover twenty-seven yards two coats, and the expense is but a trifle.

Rancid oil may be restored to its original purity and sweetness, by being heated with a certain quantity of calcined magnesia.

TO MAKE TRACING PAPER.

The *Engineering and Mining Journal* says that artists, architects, land surveyors, and all who have occasion to make use of tracing paper in their professional duties, will be glad to know that any paper capable of the transfer of a drawing in ordinary ink, pencil or water-colors, and that even a stout drawing-paper, can be made as transparent as the thin yellowish paper at present used for tracing purposes. The liquid used is benzine. If the paper is dampened with pure and fresh benzine, it at once assumes transparency, and permits of tracings being made, and of ink or water-colors being used on its surface without any "running." The paper resumes its opacity as the benzine evaporates, and if the drawing is not then completed, the requisite portion of the paper must be again dampened with the benzine. The transparent calico on which

indestructible tracings can be made, was a most valuable invention; and this new discovery of the properties of benzine will prove of further service to many branches of the art profession, in allowing the use of stiff paper where formerly only a slight tissue could be used.

CHEAP VARNISH.

Put a quantity of gum shellac in a bottle containing alcohol enough to cover it; cork tightly, and set near the stove, or in the sunshine, as the heat aids solution. Shake occasionally. If not dissolved in three days, add more alcohol. This varnish can be made for two dollars and fifty cents per gallon, and is as good as that costing from five to seven dollars.

TO WHITEN BEES-WAX.

Take the cleanest bees-wax you can obtain, melt it in hot water, skim it out in a cup or basin previously oiled; when quite cold cut the wax in thin slices; expose these to the action of the sun and air upon white dishes, sprinkling it, unless

there is rain, once or twice each day with clean water. At the end of a week melt the wax again, and proceed as before. In hot weather, the wax may be floated on water. in the middle of the day.

TO BRONZE PORCELAIN STONE WARE.

A very industrious technologist gives a simple bronzing process, applicable to porcelain, stone-ware and composition, picture and looking-glass frames. The articles are first done over with a thin solution of water-glass, by the aid of a soft camel's-hair brush; bronze powder is then dusted on, and any excess not adherent, is knocked off by a few gentle taps; the article is next heated, to dry the silicate, and the bronze becomes firmly attached. Probably in the case of porcelain, stone ware, etc., some chemical union of the silicate will take place, but in other cases the water-glass will only tend to make the bronze powder adhere to the surface. After the heating, the bronze may be polished or burnished with agate tools.—*Moore's Rural New Yorker.*

SIENNA MARBLE.

Ground light buff; for dark vein color, lamp-black and India-red. To produce any of the neutral tints add white to the above, make a few tints with prussian blue, indian red and white, each of these should vary a little in tone. Dip a large feather in turpentine then into the dark vein color, with this form a leading vein across your panel, giving it an uneven, ragged, and broken appearance; this should be done while your ground is wet, now use your feather and the neutral tints, putting in the smaller veins, breaking them in irregular pieces, springing from the leading vein, badger until soft and mellow; when dry, rub over slightly with linseed oil, applied with a fine piece of woolen or silk. Now dip a small sponge in thin white and dapple it in an irregular manner, in and about the veins. Soften and blend with the badger at the same time. Then put in a touch of solid white, promiscuously amongst the veins. For glazing, use Oxford ochre and raw sienna, with an occasional bright tint, by adding

a grain of crimson lake; glaze over the work in patches, the darkest shades to be in connection with the leading vein. Now introduce a few sharp touches of black, on and near the leading vein; this, when properly done, will give the veins depth and the appearance of being sunken.

ORIENTAL PAINTING.

This beautiful work is very simple; its characteristic effect being produced by using transparent colors (or lakes) on glass, and putting tinsel behind. The materials used are oil colors, in tubes, and several sizes of artist's brushes. These colors are mixed with demar varnish. Any print, or lithograph of flowers, fruits or birds is suitable. Wash your glass with spirits of turpentine; when dry, place it over your design, and with a fine brush or steel pen, trace carefully all the outlines and such other lines as will add to the effect. Any false lines may be removed with turpentine, or, after they are dry, alcohol. For outlining, use lamp-black mixed with demar varnish and thinned with turpentine, till it will flow from a pen. When your outline is dry, place it over white paper, and proceed to color the design with proper colors, mixed very thin with varnish; shade with

extra coats of the same color, giving each one ample time to dry. It will require some practice to mix the colors so as to produce the proper hues. The only colors really necessary, are scarlet-lake, yellow-lake, prussian blue and flake-white. White should seldom be used, and never be mixed with the other colors. The least possible blue added to scarlet will produce crimson; red and blue make purple; red and yellow, orange; blue and yellow, green; you can vary the proportions so as to produce any color you desire. It only remains after this to cover the rest of the glass with the same black used for outline, only not so thin. If you can procure tinsel of the color of your picture, cut it in the shapes required to fit the design, and fasten it with just enough varnish to hold it in its place. The more crushed and broken it is, the more the picture will sparkle. Cut a piece of cloth a trifle larger than the glass, and paste on the edges to hold the tinsel in place, and frame as soon as convenient. Wash your brushes with spirits of turpentine and soap and water.

WATER PROOF CLOTH.

Equal parts of yellow ochre and lamp-black; mix with it an equal quantity, in bulk, of strong boiling soap-suds; lay on as thick as the brush will spread; in three days finish with black paint

Repeated experiments prove that paints applied between November and March, will last twice as long as that applied in warm weather. The reason is, that in cold weather the component parts of the paint form a hard substance on the surface, as hard almost as glass, but in warm weather the oil penetrates the boards, and the paint soon wears off.

GRECIAN OIL PAINTING.

A very beautiful effect may be produced by taking any lithograph print, rubbing it over with a solution of turpentine and balsam copabia until the paper becomes transparent; then placing the print between folds of soft paper, to absorb the surplus balsam; lay the face to a glass of convenient size and set it before a window; paint with transparent colors, ground in drying oil, in imitation of the natural colors, as near as possible; when dry back up the print with paper. These colors can be put on in a careless manner and when viewed from the front it will have the appearance of a rich oil painting on canvass.

TO IMITATE GRANITE

Prepare the ground with a light gray, and spatter first black and then white over the work by striking against a heavy stick, holding it up close to the work; a short stubby brush should be used; mix the paint used for spattering in turpentine.

RED OR ABERDEEN GRANITE.

Prepare the ground with light salmon-color, spatter with black, red and white.

FROSTING.

For Windows, &c.—White and sugar of lead in equal parts; dilute with turpentine. This should be stiff, using only a small quantity; rub on well. It would be advisable to work all surplus frosting out of the brush before applying it to the glass. Then take a double fold of cotton-flannel and stretch it over a block that has a level face, and tamper it over the glass. When this is done, take a straight-edge, one inch wide, and place it on the lower left and upper right hand

corners of the window pane, dividing the distance equally; then take a sharp pointed stick and draw it gently down on each side of the straight-edge; when done, reverse, placing your guide on the upper left and lower right hand corners. Mark same as before. This will form a diamond in the centre. When dry, this frosting will be nearly as hard as the glass itself

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COMPOUND COLORS.

The colors arising from mixture are innumerable. My object it to give the simplest and most comprehensive method of preparing them. These, when the unity of two colors, are termed "the virgin tints." The greatest purity and richness is attained in using the least number of colors. In mixing tints, I will give the body color first, or the one which predominates; and next, the one that has the strongest relation to it, and so on. It is almost an impossibility to give the proportions a minute exactness, as this will be owing to the strength of the colors used, and taste, judgment, etc., of the operator.

TABLE OF TINTS.

Brick Color.—Yellow ochre, two parts; red lead one part; white.

Bronze Green.—Permanent green, lamp black, chromé yellow, raw umber.

Chestnut.—Red four parts, black three parts, chrome yellow one part.

Chocolate.—Lamp black two parts, Spanish brown two parts, yellow one part.

Claret.—Red four parts, umber two parts, lamp black one part.

Cream.—White four parts, chrome yellow one part, raw umber.

Changeable.—Red two parts, chrome green one part, tint with white.

Carnation.—Madder lake, three parts; one part white.

Lead Color.—Six parts white, one part lamp-black.

Dove Color.—White, four parts; vermillion, two parts; blue, one part; chrome yellow, one part.

Flesh Color.—Two parts lake, one part white lead, and a little vermillion.

Fawn Color.—Two parts white lead, one part stone ochre, and vermillion to suit.

Gold Color.—Two parts stone ochre, add red until you get the desired shade.

Grass Green.—Chrome yellow; add prussian blue to get the desired shade.

Jacquel.—Two parts chrome yellow, two parts rose pink, tone with white; this is only used in distemper. (See Striping.)

Light Grey.—Six parts white lead, and prussian blue to suit.

Light Timber Color.—Two parts yellow ochre, one part white lead; tone with umber.

Light Willow Green.—White lead, brought to the desired shade with verdigris.

Lime Stone Color.—Four parts white lead, three parts yellow ochre, one part black, tone with red.

Lemon Color.—White lead, tone with light chrome yellow to get the desired shade.

Lilac.—White lead four parts, Venetian red one part, tone with prussian blue.

Pearl.—Ten parts white lead, one part lamp black, tinge with prussian blue.

Peach Blossom.—White lead eight parts, red one part, blue and yellow combined one part.

Pea Green.—White lead, add chrome green to get the tone desired.

Purple.—Violet tinctured with blue and white in equal quantities.

Oakwood Color.—White lead eight parts, one part yellow ochre, tone with raw umber.

Orange.—Chrome yellow, tinge with Venetian red.

Olive.—Chrome yellow eight parts, Prussian blue one part, black and white combined one part.

Portland Stone Color.—Raw umber two parts, yellow ochre two parts, white lead one part.

Rose Color.—White lead two parts, add madder lake for desired shade.

Sand-stone Color.—White lead six parts, yellow ochre three parts, black one part, tinge with red.

Snuff Color.—Yellow ochre four parts, Vandyke brown to suit.

Silver Gray.—White lead nine parts, indigo and lamp black combined, one part.

Straw Color.—White lead and chrome yellow, add the latter to get the desired shade.

Salmon Color.—White lead, chrome yellow, raw umber, venetian red. The white lead for base, then add the other ingredients in small quantities until the required shade is produced.

Violet Color.—Vermillion four parts, prussian blue and white lead combined one part.

Drab.—White lead six parts, raw umber one part; or white eight parts, yellow ochre one part, Venetian red and lamp black combined one part.

Plum Color.—White lead four parts, prussian blue one part, Venetian red one part.

Dark Poke Berry Color.—Indian red, three parts, prussian blue one part; or, rose pink three parts, lamp black one part.

Invisible Green.—Two parts lamp black, one part chrome green.

Brown.—Venetian red, brought to any shade with lamp black.

These tints can be brought to any degree of lightness with white and yellow.

BRONZING.

This should be done on the color varnish; the surface to be thoroughly rubbed down with pulverized pumice stone and water, in order to kill the gloss. Give the parts which are to be bronzed a washing in a thin solution of ordinary starch and water, letting it dry and remain until you have gone through with the operation of bronzing.

TO PREPARE SIZING FOR BRONZE.

Grind a small quantity of chrome yellow in wearing varnish; apply with a camel's hair pencil

same as in ordinary striping. When the size becomes tacky, proceed to put on your bronze powder in the following manner: Take a small ball of raw cotton and enclose it in a piece of cotton or silk velvet by bringing the corners up together and wind with twine; this will form a handle; it requires to be about the size of a walnut. Dip this in the bronze powder and rub it lightly over the work. When dry, wash with a sponge and cold water, to remove all the starch and superfluous bronze. Should any bronze adhere to the surface, where it is not desired, it can be rubbed out with superfine pumice or rotten stone and water, at the same time rubbing it lightly over the stripe to remove all loose particles that the varnish brush would be apt to work out; wash off, etc.

TO CLEAN STRIPING PENCILS.

Wash out with turpentine, draw them repeatedly through a lump of beef tallow and place them on a window glass, rubbing them out with the points of your fingers in a straight position. When wanted wash out with turpentine.

SIGN WRITING.

It has ever proved a difficult task to the various writers on this subject to convey any set of comprehensive rules as a guide, particularly to persons who have no natural taste for this branch of art. It is supposed by some that this is a mere mechanical art, and that any person with a common stock of perseverance can acquire it; this is not so, as not one sign writer in fifty under the old regime of designing, has become a master. Not only does it require a display of artistic skill, but calls into requisition the mathematical and geometrical sciences. The rules for applying the various material, etc., are simple in their details, and require but a limited practice. The great disideratum has been to acquire uniformity and gracefulness in outline, etc.; these difficulties have been overcome since the introduction of ROUSSEAU'S perforated patterns for letters, which now brings sign writing within the reach of all painters and amateurs. These letters embrace all the newest designs, and vary in size from three to thirty inches. All patterns of a smaller denomination are cut from paste-board and calculated for tracing. The term perforated simply implies piercing through the outline of the letter or design on paper, these are placed on the face of the sign,

and the impression taken in the following manner. If the ground work is white, fill a piece of flannel, or other loose cloth, with finely powdered rose-pink or charcoal, and pounce on the outlines with force sufficient to drive the powder through the holes in the pattern; raise the paper carefully and you will have the dotted lines of the design on the sign; if dark ground, use whiting in your pounce bag; if the powders are dry and fine, the impression can be taken by rubbing the bag over the design. The work is now ready; pencil and fill.

Illustrations showing designs in miniature of the various styles we are manufacturing, giving the number, size, price per set, etc., that a person in ordering will have no mistake occur, may be found on page 92, *et. seq.*

SIGNS IN GOLD AND SMALTS.

The sign should receive at least four coats of paint, and have a smooth and level surface. Signs, as well as other painting, should be flatted for inside, and glossed for outside. The creeping of your size or colors can be prevented by rubbing it over with the hand, or warm weak soap-suds and sponge; wipe dry with chamois skin; when

the whole face of your board will receive a weak solution of starch, (or what would be as well,) cut a large potatoe in slices and rub them over it slightly, to prevent the gold adhering to parts where it is not required. The spaces above and below the letters should occupy about one-eighth of the width of the board, and the space between any two lines of letters may be a little narrower; for which use a chalk-line and dividers. The relative position of the letters on the board should be such, that there ought to be about the same amount of space between each two letters; thus, an A coming after an L the two should be closer than an I and an H; punctuation should also be observed.

Oil Gold Size.—The best is prepared in the following manner: Procure some old or fat linseed oil, the older it is the better; mix a little Oxford ochre with it, and a small quantity of sugar of lead; thin it with boiled oil and strain through a piece of fine linen. The size should be limpid, and thin enough to flow freely and evenly, and well rubbed out. Great care must be taken not to gild before the size is dry, and not to leave it until it is too dry, as in the first case the gold will crack, while in the second, it will stick in some places and rub off in others, making a bad job. The temperature or condition can be determined by applying the knuckles to the size.

GILDING.

This does not require a great amount of skill; still, there is a "know how" to handle gold leaf. There are various ways, but the simplest method is to take your book and lay it down on some level surface, and by the use of the straight edge and sharp paper knife cut the back entirely off. Then take the first paper off that is used between the leaves of gold. Lay it on a level board or table, and rub it over lightly with a hard lump of beef tallow; take the paper and rub the superfluous tallow off by rubbing on the ball of the hand. Place it back on the leaf with the tallowed side down, rubbing the points of your fingers evenly over the paper, being careful and touch every part. Raise the paper by inserting the point of a knife under it and you will find the leaf nicely adhered to the tallow. This can be cut in any desired shape required, when it can be laid on your sizing, rubbing it on with the points of your fingers. Raise the paper off with the point of a knife, as before mentioned, and the leaf will remain; rub it over with a ball of raw cotton, when your gilding is complete. Gold leaf can be shaded or glazed with any of the following transparent colors: For yellow, sienna earth, Indian yellow, Dutch pink and yellow lake. Reds, madder car-

mine, madder lakes, lac lake, dragon's blood and rose pink. Blue, indigo. Orange, orange lead, golden sulpher of antimony, burnt sienna, madder orange. Greens, prussian green, verdigris. Purples, burnt carmine and madder lake. Russet, prussiate of copper. Browns, burnt umber, mummy and asphaltum. Blacks, ivory black, bone black, Frankfort black and Spanish. In using the above transparents, make use of sugar of lead as a dryer.

SMALTING.

Temper white lead with good clear drying oil, as stiff as you can well use it with a pencil or brush, add to this a sufficient quantity of prussian blue, finely ground, (*i. e.*,) if using zaffre, with this cover the surface of your sign, covering it completely and equally. Then strew your smalt thickly over this ground while it is moist, and with a piece of paste-board with a straight edge, stroke it over, that it may lie evenly and thickly alike on all parts, and with a piece of folded cloth in the form of a pad, dab it down close, that it may take well upon the ground laid under it. When the ground has become sufficiently dry, wipe off all loose smalt with a soft brush.

IMITATION GOLD.

This is done by painting the ground of a gold orange color. Pounce on the outlines for letters, and cut around them with the ground for smalt, and apply same as before mentioned. This is quickly done and looks well. Any light grounds can be painted out in this way, using a darker shade for cutting in.

SIGNS IN FLOCK.

These are designed for interiors only, to be laid in glue size, used the same as smalt. It should be thoroughly dry and sifted on; a small quantity of fine white glass frosting has a good effect with smalt or flock.

GILDING ON GLASS.

Cut a thin piece of paper to the size of your glass, on this mark out your letters, using paste-board patterns and a black lead pencil, prick through the outlines of the letters with a needle; now place your design upon the glass right side

up, and dust it with the pounce-bag; take the paper carefully off, and the design will appear in white dots upon the glass. This is to guide you in laying on the gold on the opposite side. Make the size of clean water and isinglass, the solution to be very thin. This requires boiling over a slow fire until dissolved, strain; when cold it is ready for use. Flow it on with a camel's-hair brush, giving it a little margin over what the line of letters will naturally require; let it drain off a little, and lay on the leaf from the book, by cutting the leaves the size you want with a pair of scissors. When perfectly dry rub the gold over with a ball of fine cotton to polish it. Another coat can be laid over this in the same manner, if desired. It is now ready for writing. The letters will now have to be written backward, which will require the drawing to be face downward; pounce as before; put on the gilding this time (if the powder does not work freely) through the pattern, the fibers will have to be cut down with a level block of pumice-stone. Mix lampblack in equal parts, Japan, rubbing varnish, and turpentine. Temper with the last named ingredient to a working consistency. When thoroughly dry proceed to write with this. Wash off the superfluous gold, when practicable, and shade as in ordinary sign writing.

Another method is to rub the front of the glass over with water and whiting. When dry, lay on your pasteboard patterns, and mark out with a sharp pointed hard wood stick. Turn the glass round, and paint backwards for gilding. Outline with black asphaltum, these lines require to be fine, being designed only to enclose the gold. Size with a thin solution of gum arabic and water, and proceed to lay on the gold the same as above mentioned, when the back of the letters can be filled with asphaltum, which will require three coats; this dries quick. Wash off, shade, etc.

Small signs, door plates. etc., can be done by wetting the glass with the tongue, and having your leaf cut, take off the top paper, leaving the book remain on the table and press the sign down upon it; when covered repeat the operation until the second and third coats are laid, if the job should require it. When dry lay your patterns (paste-board) on the leaf to read backwards, then mark out the letters with a needle made fast in a handle. Immerse the sign in water a minute, when you can work out all superfluous leaf, by the use of a slim pine stick splintered at the end; this requires to be pointed at the end similar to a black lead-pencil: it can be splintered simply by mashing it between the front teeth. When all unnecessary particles are worked out, wash off

with a flat camel's-hair brush and give three coats of asphaltum as before mentioned.

It is quite important in glass gilding to have the glass, the size, and every thing you use, perfectly clean. A touch of the finger on the glass will tarnish the gold. The leaf requires to be laid level, and when dry, polished thoroughly with a ball of cotton as before mentioned. Its uniform brightness depends in a great measure upon these points. Ornaments designed to show through the glass should be put on before the leaf is laid. Embossing on the surface of the gold can be done with any of the transparent colors. Etching can be done through the leaf before the black is put on, by using a sharp pointed slate pencil or hard wood stick, and pick in with the black.

Enameled tin requires to be cleaned with alcohol before lettering, to remove grease, etc., same as on glass. In lettering on enameled tin, cut a piece of paper a little larger than the tin, coat it over thickly and evenly with whiting, then take thick paste, the same as that used by shoe-makers, and paste around the edges. Place the whiting side down on the tin and double over the edges, and make it fast on the under side. When dry, lay on your letters or design, (which require to be pasteboard,) and trace them with some blunt pointed instrument, similar to a knitting needle. This requires to be used with considerable force,

by working it forward and back a few times. When dry, cut the paper off by inserting a sharp knife around the edges; lift the paper carefully off and you will have the outlines traced in white on the tin. For beginners, we would recommend a sheath board, (*i. e.*) a board somewhat longer than a sheet of boiler tin, with cleets across at each end about one-half inch in thickness. Lay your sign on the table, and place the sheath over it, and you will have a rest for your arm without endangering the sign, which can be drawn out as you are progressing with your work. Common tin can be written to have the appearance of silver leaf by using the pasteboard patterns, and marking with some sharp and hard pointed instrument, and filling it with black paint, as thick as will flow.

Chinese painting is done by painting the ground any color, leaving the letters naked, and placing any colored foils back of them. They require to be crumpled up in the hand and partially straightened out before using.

Political banners, etc., require to be stretched, and dampened quite through with a sponge, before writing. Mix color, equal parts, rubbing varnish, japan and turpentine, and tone with turpentine when required. For writing on paper, boards, etc., grind any of the dry colors in shellac varnish and dilute with alcohol.

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